

**NATIONAL WEATHER SERVICE INSTRUCTION 30-2113**

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***Maintenance, Logistics and Facilities  
Systems/Equipment Maintenance, NWSPD 30-21***

**AWIPS MAINTENANCE**

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Signed

October 5, 2004

John McNulty, Jr.

Date

Director, Office of Operational  
Systems

## AWIPS Maintenance

<u>Table of Contents:</u>	<u>Page</u>
1. Introduction.....	3
2. Procedures.....	3
3. Definition .....	3
4. Organization.....	4
5. Responsibilities.....	4
5.1 Field Office .....	4
5.1.1 Local Application(s) Focal Points / Formatter Developers .....	4
5.1.2 Electronic Systems Analyst .....	4
5.1.3 Information Technology Officers .....	4
5.1.4 Electronics Technicians .....	5
5.2 National Logistics Support Center and National Reconditioning Center.....	5
5.3 Regional Headquarters.....	5
5.4 NWS Headquarters .....	5
5.4.1 Engineering and Acquisition Branch.....	5
5.4.2 Maintenance Branch .....	5
5.4.3 Configuration Branch .....	5
5.4.4 AWIPS Support Branch.....	5
5.4.5 Systems Engineering Center .....	6
5.4.6 Network Control Facility .....	6
5.5 Site Support Team.....	6
5.6 Meteorological Development Laboratory.....	6
5.7 Hydrology Laboratory .....	6
5.8 Forecast Systems Laboratory.....	7
6. Maintenance.....	7
6.1 Hardware Maintenance .....	7
6.2 Software Maintenance .....	7
6.2.1 Commercial-Off-The-Shelf (COTS) Software .....	7
6.2.2 Government-Furnished Software.....	7
6.2.3 Locally Developed Software .....	7
7. Training.....	7
7.1 Staff Development .....	7
7.2 On-Site User Training.....	7
8. Supply Support .....	8
8.1 Field Supply Support .....	8

8.2 Preservation, Packing, and Packaging .....	8
8.3 Storage .....	8
8.4Transportation .....	8
9. Documentation .....	8
9.1 Maintenance Reporting .....	8
9.2 Maintenance and Technical Documents .....	8

1. Introduction. This instruction establishes specific equipment maintenance, software installation and local applications development and implementation procedures. These procedures are documented through the use of established technical documentation for Advanced Weather Interactive Processing System (AWIPS), Engineering Handbook 13 (EHB-13). (e.g., technical manuals, maintenance notes, modification notes, information notes, system administration notes, software notes). This instruction also ensures standardization of implementation of local formatters and continuity of operations in the event of the failure of a local formatter.

2. Procedures. Procedures stated in National Weather Service Instruction (NWSI) 30-2101, *Systems Maintenance Management*, govern operational NWS system, equipment and software installation and maintenance activities. NWS field personnel maintain and support AWIPS equipment and software as described herein. Maintenance and software installation are accomplished following guidance in authorized technical manuals, modification, maintenance information, and system administration notes as defined in EHB-13. Maintenance and software installation reporting follows instructions contained in NWSI 30-2104, *Maintenance Data Documentation*. System outages reporting follow instructions contained in NWSI 30-2112, *Reporting Systems, Equipment and Communication Outages*.

3. Definition. The AWIPS baseline consists of hardware and software deployed by the AWIPS program. The AWIPS baseline is under AWIPS configuration management control, meaning modifications to, additions or deletions of system components, hardware or software, are documented, integrated, and tested for compliance with new or previously established baseline requirements. The AWIPS program supports the baseline system by providing Network Control Facility (NCF) monitoring and telephone assistance, root cause analysis, and resolution of system problems. The AWIPS baseline includes the Interactive Forecast Preparation System (IFPS) application. IFPS contains several components, including, the Graphical Forecast Editor Suite (GFESuite), and text formatters that satisfy IFPS Initial Operating Capability (IOC) requirements. The IFPS formatters are a part of the AWIPS baseline.

Within the AWIPS IFPS baseline, there are text formatter templates. Local and regional headquarters field personnel may use the GFESuite Smart Tools to adapt the text formatter templates to local site needs. However, once adaptations are applied, the resulting product is considered a local formatter. A local formatter is a local application that is not a part of the AWIPS baseline. Except as defined in this policy and associated implementation guideline, the Local Application Integration Framework Manual defines policy, guidelines, and responsibilities concerning local application development of which the writing of local formatters is a subset.

Field and regional headquarters personnel will also have the capability of writing new formatters in a future IFPS Rapid Alpha Process release.

4. Organization. Maintenance services for AWIPS equipment are focused at the local level, with augmenting capabilities at the regional and national levels.

5. Responsibilities. Organizational responsibilities are presented in a “bottoms-up” approach because of the field focus of this document.

5.1 Field Office. Field staff are responsible for ensuring appropriate entries into the Engineering Management Reporting System (EMRS) as prescribed in NWSI 30-2104. Concurrent outages are handled following the instructions in NWSI 30-2101, Section 5.2, Maintenance Priorities, and are reported consistent with NWSI 30-2112, *Reporting Systems, Equipment and Communication Outages*.

5.1.1 Local Application(s) Focal Points / Formatter Developers. These developers are responsible for:

- developing, modifying and writing local formatters and applications
- documenting locally developed formatters and applications as defined in Engineering Handbook 13, Section 3.4, *Applications Installation Instructions and Lessons Learned*
- configuration management of local formatters and applications
- creating back-ups
- configuring baseline formatters in IFPS in the event of a formatter failure
- communicating the correct support profile to forecasters.

5.1.2 Electronic Systems Analyst (ESA). - Serves as office leader for IT related systems operation and communications projects for their office, in addition to overseeing the office's equipment maintenance program. In this capacity, the ESA serves as the single point of contact for coordinating regional and national IT projects of a system, networking or telecommunications nature. This would include things such as installation or modification of IT systems, operating systems installation and configuration, baseline software loads for systems such as AWIPS, NEXRAD, ASOS, etc., Local Area and Wide Area Networking hardware and configuration, network systems administration, performance monitoring, tuning and corrective actions, etc. For these projects and initiatives, the ESA will be responsible to lead and coordinate requirements analysis, resource planning, scheduling, technical work and other required activities with the office management team, ITO and appropriate office focal points, and for keeping appropriate regional program leaders informed on progress towards objectives and schedules.

5.1.3 Information Technology Officers (ITO). Serves as office leader for operational software and IT services projects for their office. This is in addition to current responsibilities in local IT development and support work. In this capacity, the ITO will serve as the single point of contact for coordinating regional and national IT projects and initiatives of an operational or service nature. This would include things such as changes in web services, management, financial and

office automation applications, AWIPS applications and AWIPS operational capabilities such as IFPS, WWA, Warngen, CRS formatters, etc. For these projects and initiatives, the ITO will be responsible to lead and coordinate requirements analysis, resource planning, scheduling, technical work or other required activities with the office management team, ESA and appropriate office focal points, and for keeping appropriate regional program leaders informed on progress towards objectives and schedules.

5.1.4 Electronics Technicians. The site electronics staff is responsible for restoring AWIPS equipment to operational status, returning defective components, ordering replacement spares, and reporting on maintenance services provided. Work must be performed in conformance to priorities established by the ESA or meteorologist-in-charge.

5.2 National Logistics Support Center (NLSC) and National Reconditioning Center (NRC). The NLSC and NRC are primarily responsible for AWIPS Linux hardware maintenance, logistics, and repair management. NRC provides incoming quality control on new Linux hardware and spares, coordinates with vendors to have failed units under warranty repaired, and performs hardware diagnostics to ensure the vendor properly repaired failed units. The NLSC is the central supply point for all AWIPS Linux line replaceable units (LRU). The NLSC is responsible for storing spare AWIPS Linux systems, shipping spares to NWS field sites to replace failed assemblies, and receiving failed units from field sites.

5.3 Regional Headquarters (RHQ). RHQ coordinates resources for the AWIPS equipment as needed to support non-standard (e.g., emergency) service requirements. Additionally, the RHQ is responsible for coordinating alpha, beta, and baseline software installations, monitoring requirements for local formatters, collecting and consolidating documented software deficiencies, ensuring site compliance with local formatter policies and instructions, coordinating implementation of baseline formatters, and facilitating resolution of software discrepancies.

5.4 NWS Headquarters (WSH). WSH support for these systems/equipment is distributed among several organizations :

5.4.1 Engineering and Acquisition Branch (OPS11). OPS11 is responsible for assigned equipment modification/retrofit design.

5.4.2 Maintenance Branch (OPS12). OPS12 is responsible for generating, coordinating, and providing modification, maintenance, and software installation and administration, processing kits for field use, analyzing maintenance data and trends, and documentation.

5.4.3 Configuration Branch (OPS13). OPS13 is responsible for managing the AWIPS configuration baseline, maintaining AWIPS baseline documentation in the Technical Reference Library, and collecting AWIPS maintenance data by way of the EMRS.

5.4.4 AWIPS Support Branch (OPS21). OPS21 is responsible for providing:

- SST support to the NWS field for baseline software, infrastructure and maintenance release software installation instructions, and beta test management

- Operations and Maintenance Contracting Officer's Technical Representative services for the AWIPS prime contract
- technical field and regional liaisons for AWIPS operations support.

5.4.5 Systems Engineering Center (OST3). OST3 is responsible for local formatter policy and guidance development, documentation, and configuration management. OST3 is also responsible for schedules, planning, development, integration and deployment coordination for all IFPS builds and will:

- Manage and execute software maintenance including corrective, adaptive, and minor enhancements.
- Manage and execute software development including implementation of all new functionality.
- Manage and execute software integration and testing.
- Make recommendations on the infusion of new technology into the hardware and software baselines.
- Monitor and manage AWIPS system performance.
- Define, design and manage the implementation of infrastructure evolution including the software, hardware and communications architectures.
- Manage and maintain in-house infrastructure including all test beds and development platforms.

5.4.6 Network Control Facility (NCF). The NCF monitors and controls AWIPS-wide operations (hardware, software, and communications) at all sites. The NCF authorizes, schedules, and arranges the dispatching of hardware maintenance providers. Through remote monitoring and control capabilities, the NCF can assist AWIPS sites in performing system administration tasks. The NCF will coordinate and assist the Meteorological Development Laboratory (MDL) with troubleshooting and resolving problems with baseline formatters. The NCF will perform a system administration activity only after coordinating with the site.

5.5 Site Support Team (SST). The SST assists the NWS field offices in diagnosing and resolving troubles with AWIPS baseline software. AWIPS baseline software applications are developed by teams of developers from the Forecast Systems Laboratory (FSL), the Office of Science and Technology (OST), and the Office of Hydrologic Development (OHD). The AWIPS sites access baseline software support through the NCF. The NCF refers field reported trouble tickets regarding Government developed baseline software, which the NCF staff is unable to resolve, to the SST for resolution.

5.6 Meteorological Development Laboratory (MDL). MDL is responsible for the development, and maintenance configuration management of IFPS baseline and baseline formatters. MDL is also responsible for AWIPS local application support, development of the Local AWIPS Model Output Statistics Program (LAMP), refining operational AWIPS radar mosaic products, developing a National Digital Forecast Database (NDFD), and other AWIPS software.

5.7 Hydrology Laboratory (HL). HL is responsible for the development, maintenance, and configuration management of baseline hydrologic formatters. HL is also responsible for

development of the NWS River Forecast System (NWSRFS), the WFO Hydrologic Forecast System (WHFS), and other AWIPS baseline software.

5.8 Forecast Systems Laboratory (FSL). FSL is responsible for the development of the Graphical Format Editor (GFE) text product infrastructure, migration of UNIX to Linux, local formatter templates, and correcting deficiencies in both, including maintenance of associated documentation.

6. Maintenance.

6.1 Hardware Maintenance. The AWIPS availability parameters encompass the entire AWIPS including NCF, Weather Forecast Office (WFO), and River Forecast Center (RFC) sites. Availability is the ratio of a system's components up-time to total-time, consisting of both up-time and down-time. The NCF is notified through electronic monitoring of an AWIPS hardware failure. The NCF invokes the on-site backup equipment, opens a trouble ticket, troubleshoots, and in the event of a hardware failure, requests the site to replace the equipment through the consolidated logistics support (CLS) system.

6.2 Software Maintenance.

6.2.1 Commercial-Off-The-Shelf (COTS) Software. The NCF restores the site by using existing recovery procedures. When these procedures fail to restore a site and restoration requires knowledge beyond that of the NCF staff, developers at the prime COTS supplier will assist the NCF in finding a solution. Northrop Grumman Information Technology (NGIT)-furnished software, NGIT-furnished monitor and control software problems are escalated to NGIT Engineering.

6.2.2 Government-Furnished Software. The NCF restores the site by using existing recovery procedures. When these procedures fail to restore a site and restoration requires knowledge beyond those of the NCF staff, the NCF will turn the problem over to the SST. Government-furnished software and government locally-developed application code problems areas are escalated to the SST.

6.2.3 Locally Developed Software. Local formatters will be developed and installed following Engineering Handbook 13, Section 3.4. When a problem is traced to locally developed software, the NCF will refer the problem to the SST. The SST, with site and NWS staff assistance, works with the site to solve the problem. If the need arises, the NCF will restore the site to its baseline configuration (last known good AWIPS software version installed at the site).

7. Training.

7.1 Staff Development. Overall staff development and training for the NWS electronics community is managed following Office of Climate, Water, and Weather Services guidelines.

7.2 On-Site User Training. Occasionally, on-site user training may be provided for WFO and/or RFC operational personnel. Topics span special aspects of AWIPS operations including

significant hands-on experience with the site's AWIPS.

8. Supply Support.

8.1 Field Supply Support. Site responsibilities are limited to providing common-use consumables (e.g., printer cartridges, back-up tapes, computer paper, cleaning materials) required for day-to-day site operations.

8.2 Preservation, Packing, and Packaging. AWIPS operating sites are required to pack, and/or package AWIPS spare parts for shipment to the NLSC.

8.3 Storage. The NLSC is responsible for storing AWIPS spares in an environmentally suitable facility. Field site capabilities are sufficient to store manuals, drawings, and software libraries.

8.4 Transportation. Requirements for NWS-arranged or managed transportation are the same as for other NWS supported equipment.

9. Documentation.

9.1 Maintenance Reporting. Field personnel responsible for reporting maintenance activities and changes to baseline AWIPS hardware and software components and will accurately document the time and nature of the activity in the EMRS following instructions in NWSI 30-2104.

9.2 Maintenance and Technical Documents. Maintenance of AWIPS equipment is accomplished following authorized guidance (e.g., technical manuals, modification notes, maintenance notes). Centralized web access to EHB-13 (i.e., maintenance procedures, technical documentation, modification and maintenance notes) is provided at:  
<http://www.ops1.nws.noaa.gov/EHBS.HTM>.